Mark P. Simmons

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Colorado State University
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Positions held

Professor and curator of the herbarium, Department of Biology, Colorado State University, 2013 – present
Associate professor and curator of the herbarium, Department of Biology, Colorado State University, 2007 – 2013
Assistant professor and curator of the herbarium, Department of Biology, Colorado State University, 2001 – 2007
Postdoctoral fellow, Department of Evolution, Ecology, and Organismal Biology; Ohio State University, 2000 – 2001

Education

Ph.D. (Plant Biology) L.H. Bailey Hortorium, Cornell University, 2000
B.A. (Biology) University of Richmond, 1994

Awards and distinctions

J. William Fulbright Foreign Scholarship Award, 2016 – 17
John Simon Guggenheim Memorial Foundation Fellowship, 2009 – 10
Systematic Biology Publisher's Award for Excellence, 2000
Golden Key National Honor Society, 1993 – 94, 2005 (honorary member)
Magna Cum Laude, 1994
Phi Beta Kappa, 1994
Biology Department Honors Program, 1992 – 94

Fellowships and grants

USDA – Animal and Plant Health Inspection Service
"Toxic plant disseminule image resources for identification support at ports-of-entry" (PI) 2016 – 19
USDA – Animal and Plant Health Inspection Service
"Digital imagery for pest screening, detection, identication and report production," (PI) 2012 – 19
National Geographic Society
"Gene flow in a recently cultivated plant lineage: the spread of *Catha edulis* (qat) in Uganda" (co-PI) 2016 – 17
National Science Foundation – Biological Research Collections
"Development of a novel image-based web portal for the Colorado State University Herbarium," (co-PI) 2011 – 15
REU Supplements: 2012, 2014
National Science Foundation – Doctoral Dissertation Improvement Grants
Dr. Jennifer Cappa: 2012 – 14
Dr. Christine Bacon: 2009 – 11
National Science Foundation – Systematic Biology and Biodiversity Inventories
"Phylogeny and diversification of the aril in the Celastraceae," 2007 – 11
REU Supplements: 2008, 2009
National Geographic Society
"Biogeography and Systematics of the Madagascan Celastraceae," 2006 – 07
Bureau of Land Management, Plant Information Network II, 2004 – 05
National Science Foundation – Biological Research Collections

"Collaborative Research: Linked Databases and an Interactive Key for the Vascular Flora of the Southern Rocky Mountain Region," 2003 – 07
REU Supplements: 2004, 2005

Bureau of Land Management, Plant Information Network II, 2003
Colorado State University, Career Enhancement Grant, 2002
Cornell University, Mellon Foundation Fellowship, 1995 – 99
American Society of Plant Taxonomists, Graduate Student Research Grant, 1998
Cornell University, Graduate School Travel Grant, 1997
L.H. Bailey Hortorium, Moore/Mellon Foundation Travel Grant, 1997
Cornell University, Sage Graduate Fellowship, 1994 – 95

Teaching experience

Introduction to Evolution (co-taught; BZ220), 2002 – 2008, 2010 – 2015, 2017, 2018
Plant Systematics (BZ325), 2002, -04, -06, -08, -10, -12, -14, -16, -18
The Process and Publication of Science (HONR492), 2018
Honors seminar: Scientific Writing (HONR397), 2016
Independent Study – Undergraduate Research (BZ495/BZ498), 2004 – 2011
Advanced Systematics (co-taught; BZ520), 2002, -04, -06, -08, -10, -13, -15
Independent Study – Readings in Systematics, Scientific Writing, Plant Domestication (BZ594), 2003, -09, -12
Evolution Seminar (BZ692G), 2002, -04 (x2), -06, -08, -09, -11, -12
Departmental Seminar (BZ692H), 2003, -04
The Process of Science, Makerere University 2016
The Publication of Science, Makerere University 2016
Theory and Practice of Phylogenetics, Addis Ababa University 2009, University of Nairobi 2009 + 2017, Makerere University 2016

Lab members

Current:

Ms. Jennifer Ackerfield, Ph.D. student and CSU Herbarium assistant curator
Ms. Christina Calcaterra, M.S. student
Dr. Wei Zhang, visiting professor, Shandong University

Emeritus:

Dr. Christine Bacon, Ph.D. student, 2011, Assistant professor at University of Gothenburg, Sweden
Dr. Leonardo Biral, visiting Ph.D. student from Inst. Biociencias Rio Claro in Brazil
Dr. Jennifer Cappa, co-advised Ph.D. student, 2014, Lecturer, Metropolitan State University
Mr. Manuel Curto, visiting Ph.D. student from CIBIO in Portugal, 2013
Mrs. Allison Daw, M.S. student, 2007, Portland, Oregon
Dr. Salem Elleaga, Ph.D. student advised by Dr. Harrison Hughes, 2014, Faculty member at Al-Mergeb University, Libya
Ms. Taylor Fusinatto, M.S. student, 2016, Skokie School District 65
Dr. Todd Gilligan, Ph.D. student advised by Dr. Paul Opler, 2012, Researcher at USDA – APHIS - PPQ
Dr. Cuihua Gu, Associate professor, Zhejiang Agriculture and Forestry University
Dr. Melissa Islam, M.S. student, 2005, Associate director of research and head curator at Denver Botanic Gardens
Mrs. Madeline Maher, M.S. student, 2018, Research associate at USDA – APHIS - PPQ

Ms. Jenna McAleer, M.S. student, 2014, Salish Sativas, Bellingham, Washington
Dr. Aaron Reeves, research associate, 2004, Research associate at the Animal Population Health Institute of Colorado State University
Dr. Luke Tembrock, Ph.D. student, 2015, Research associate at USDA – APHIS - PPQ
Dr. Li-Bing Zhang, postdoctoral fellow, 2004, Associate curator at Missouri Botanical Garden
Dr. Liang-Cheng Zhao, visiting professor, 2012, Beijing Forestry University

Undergraduate researchers:

Mr. Michael Adair	Ms. Arwen Milroy
Dr. Jennifer Cappa	Mr. Jack Munz
Mrs. Jennifer Coughenour	Ms. Jessica Selbst
Mrs. Allison Daw	Mr. Kevin Su
Ms. Dedra Eichstedt	Ms. Jessica Uvarov
Mr. Ward Fisher	Mrs. Kendra Yakobson
Mr. Gary Lyman	Ms. Crystal Yetter
Dr. Miles McKenna	Mr. Kenny Young

Publications

- Web of Science h-index: 30, > 5,200 citations
- Google Scholar h-index: 36, > 7,100 citations
- * = corresponding author (when not first author)

1. Hayden, W.J., M.P. Simmons, and L.J. Swanson. 1993. Wood anatomy of *Amanoa* (Euphorbiaceae). IAWA Journal 14: 205-213.
2. Simmons, M.P., W.J. Hayden, and D.M.E. Ware. 1995. The vascular flora of the Potomac River watershed of King George County, Virginia. Castanea 60: 179-209.
3. Simmons, M.P. and W.J. Hayden. 1997. Revision of the cerrado hemicryptophytic *Chamaesyce* of Boissier's *Pleiadeniae* (Euphorbiaceae). Brittonia 49: 155-180.
4. Davis, J.I., M.P. Simmons, D.W. Stevenson, and J.F. Wendel. 1998. Data decisiveness and data quality in phylogenetic analysis: an example from the monocots using mitochondrial *atpA* sequences. Systematic Biology 47: 282-310.
5. Simmons, M.P. and J.P. Hedin. 1999. Relationships and morphological character change among genera of the Celastraceae sensu lato (including Hippocrateaceae). Annals of the Missouri Botanical Garden 86: 723-757.
6. Stevenson, D.W., J.I. Davis, J.V. Freudenstein, C.R. Hardy, M.P. Simmons, and C.D. Specht. 2000. A phylogenetic analysis of the monocotyledons based on morphological and molecular character sets, with comments on the placement of *Acorus* and Hydatellaceae. Pages 17-24 *in* Monocots systematics and evolution (K. L. Wilson and D. A. Morrison, eds.). CSIRO Publishing, Sydney.
7. Simmons, M.P. 2000. A fundamental problem with amino-acid-sequence characters for phylogenetic analyses. Cladistics 16: 274-282.
8. Simmons, M.P. and H. Ochoterena. 2000. Gaps as characters in sequence-based phylogenetic analyses. Systematic Biology 49: 369-381.
9. Simmons, M.P., C.D. Bailey, and K.C. Nixon. 2000. Phylogeny reconstruction using duplicate genes. Molecular Biology and Evolution 17: 469-473.
10. Barker, N.P., L.G. Clark, J.I. Davis, M.R. Duvall, G.F. Guala, C. Hsiao, E.A. Kellogg, H.P. Linder, R. Mason-Gamer, S.Y. Mathews, M.P. Simmons, R.J. Soreng, and R.E. Spangler. 2001. Phylogeny and subfamilial classification of the grasses (Poaceae). Annals of the Missouri Botanical Garden 88: 373-457.
11. Simmons, M.P., C.C. Clevinger, V. Savolainen, R.H. Archer, S. Mathews, and J.J. Doyle. 2001. Phylogeny of the Celastraceae inferred from phytochrome B gene sequence and morphology. American Journal of Botany 88: 313-325.

12. Simmons, M.P., V. Savolainen, C.C. Clevinger, R.H. Archer, and J.I. Davis. 2001. Phylogeny of the Celastraceae inferred from 26S nuclear ribosomal DNA, phytochrome B, *rbcL, atpB,* and morphology. Molecular Phylogenetics and Evolution 19: 353-366.
13. Simmons, M.P., H. Ochoterena, and T. Carr. 2001. Incorporation, relative homoplasy, and effect of gap characters in sequence-based phylogenetic analyses. Systematic Biology 50: 454-462.
14. Simmons, M.P. and J.V. Freudenstein. 2002. Uninode coding vs. gene-tree parsimony for phylogenetic reconstruction using duplicate genes. Molecular Phylogenetics and Evolution 23: 481-498.
15. Simmons, M.P. and J.V. Freudenstein. 2002. Artifacts of coding amino acids and other composite characters for phylogenetic analysis. Cladistics 18: 354-365.
16. Simmons, M.P., C. Randle, J.V. Freudenstein, and J.W. Wenzel. 2002. Limitations of Relative Apparent Synapomorphy Analysis (RASA) for measuring phylogenetic signal. Molecular Biology and Evolution 19: 14-23.
17. Simmons, M.P., H. Ochoterena and J.V. Freudenstein. 2002. Conflict between amino acid and nucleotide characters. Cladistics 18: 200-206.
18. Simmons, M.P., H. Ochoterena and J.V. Freudenstein. 2002. Amino acid vs. nucleotide characters: challenging preconceived notions. Molecular Phylogenetics and Evolution 24: 78-90.
19. Simmons, M.P. and J.V. Freudenstein. 2003. The effects of increasing genetic distance on alignment of, and tree construction from, rDNA internal transcribed spacer sequences. Molecular Phylogenetics and Evolution 26: 444-451.
20. Baumberger, N., B. Doesseger, R. Guyot, A. Diet, R.L. Parsons, M.A. Clark, M.P. Simmons, P.A Bedinger, S.A. Goff, C. Ringli, and B. Keller. 2003. Whole-genome comparison of LRR-extensins (LRXs) in *Arabidopsis thaliana* and *Oryza sativa*: a conserved family of cell wall proteins form a vegetative and a reproductive clade. Plant Physiology 131: 1313-1326.
21. Freudenstein, J.V., K.M. Pickett, M.P. Simmons, and J.W. Wenzel. 2003. From basepairs to bird songs: phylogenetic data in the age of genomics. Cladistics 19: 333-347.
22. Simmons, M.P. 2004. Celastraceae. Pages 29-64 *in* The families and genera of vascular plants, volume 6 (K. Kubitzki, ed.). Springer, Berlin.
23. Simmons, M.P. 2004. Parnassiaceae. Pages 291-296 *in* The families and genera of vascular plants, volume 6 (K. Kubitzki, ed.). Springer, Berlin.
24. Simmons, M.P. 2004. Independence of alignment and tree search. Molecular Phylogenetics and Evolution 31: 874-879.
25. Simmons, M.P. 2004. Hippocrateaceae. Pages 3-19 *in* Flore de la Nouvelle-Calédonie, volume 25 (P. Morat, ed.). Muséum National d'Histoire Naturelle, Laboratoire de Phanérogramie, Paris.
26. Simmons, M.P. and M. Miya. 2004. Efficiently resolving the basal clades of a phylogenetic tree using Bayesian and parsimony approaches. Molecular Phylogenetics and Evolution 31: 351-362.
27. Simmons, M.P., K.M. Pickett and M. Miya. 2004. How meaningful are Bayesian posterior probabilities? Molecular Biology and Evolution 21: 188-199.
28. Simmons, M.P., A. Reeves and J.I. Davis. 2004. Character-state space versus rate of evolution for phylogenetic inference. Cladistics 20: 191-204.
29. Simmons, M.P., T.G. Carr and K. O'Neill. 2004. Relative character-state space, amount of potential phylogenetic information, and heterogeneity of nucleotide and amino acid characters. Molecular Phylogenetics and Evolution 32: 913-926.
30. Davis, J.I., D.W. Stevenson, G. Petersen, O. Seberg, L.M. Campbell, J.V. Freudenstein, D.H. Goldman, C.R. Hardy, F.A. Michelangeli, M.P. Simmons, C.D. Specht, F. Vergara-Silva, and M.A. Gandolfo. 2004. A phylogeny of the monocots, as inferred from *rbcL* and *atpA* sequence variation, and a comparison of methods for calculating jackknife and bootstrap values. Systematic Botany 29: 467-510.
31. Simmons, M.P. 2005. Amino acid versus nucleotide characters for phylogenetic inference of the "basal" angiosperms. Pages 1-27 *in* Plant genome biodiversity and evolution, volume 1B: phanerogams (A.K. Sharma and A. Sharma, eds.). Science Publishers, Inc., Enfield, New Hampshire.
32. Abdel-Ghany, S.E., I.S. Day, M.P. Simmons, P. Kugrens and A.S.N. Reddy. 2005. Origin and evolution of kinesin-like calmodulin-binding proteins. Plant Physiology 138: 1711-1722.

33. Simmons, M.P. and C.T. Webb. 2006. Quantification of the success of phylogenetic inference in simulations. Cladistics 22: 249-255.
34. Simmons, M.P., L.-B. Zhang, C.T. Webb and A. Reeves. 2006. How can third codon positions outperform first and second codon positions in phylogenetic inference? An empirical example from the seed plants. Systematic Biology 55: 245-258.
35. Simmons, M.P., L.-B. Zhang, C.T. Webb, A. Reeves and J.A. Miller. 2006. The relative performance of Bayesian and parsimony approaches when sampling characters evolving under homogeneous and heterogeneous sets of parameters. Cladistics 22: 171-185.
36. Davis, J.I., G. Petersen, O. Seberg, D.W. Stevenson, C.R. Hardy, M.P. Simmons, F.A. Michelangeli, D.H. Goldman, L.M. Campbell, C.D. Specht and J.I. Cohen. 2006. Are mitochondrial genes useful for the analysis of monocot relationships? Taxon 55: 857-870.
37. Islam, M.B. and M.P. Simmons. 2006. A thorny dilemma: testing alternative intrageneric classifications within *Ziziphus* (Rhamnaceae). Systematic Botany 31: 826-842.
38. Islam, M.B., M.P. Simmons* and R.H. Archer. 2006. Phylogeny of the *Elaeodendron* group (Celastraceae) inferred from morphological characters and nuclear and plastid genes. Systematic Botany 31: 512-524.
39. Petersen, G., O. Seberg, J.I. Davis, D.H. Goldman, D.W. Stevenson, L.M. Campbell, F.A. Michelangeli, C.D. Specht, M.W. Chase, M.F. Fay, J.C. Pires, J.V. Freudenstein, C.R. Hardy and M.P. Simmons. 2006. Mitochondrial DNA in monocot phylogenetics. Aliso 22: 52-62.
40. Poff, N.L., J.D. Olden, N.K.M. Vieira, D.S. Finn, M.P. Simmons and B.C. Kondratieff. 2006. Functional trait niches of North American lotic insects: evolutionary constraints on trait-based ecological applications. Journal of the North American Benthological Society 25: 730-755.
41. Richardson, D., M.P. Simmons and A.S.N. Reddy. 2006. Comprehensive comparative analysis of kinesins in photosynthetic eukaryotes. BMC Genomics 7: 18.
42. Zhang, L.-B. and M.P. Simmons*. 2006. Phylogeny and delimitation of the Celastrales inferred from nuclear and plastid genes. Systematic Botany 31: 122-137.
43. Zhang, L.-B., M.P. Simmons, A. Kocyan, and S.S. Renner. 2006. Phylogeny of the Cucurbitales based on DNA sequences of nine loci from three genomes: implications for morphological and sexual system evolution. Molecular Phylogenetics and Evolution 39: 305-322.
44. Simmons, M.P., K. Müller and A.P. Norton. 2007. The relative performance of indel-coding methods in simulations. Molecular Phylogenetics and Evolution 44: 724-740.
45. Simmons, M.P., L.-B. Zhang, C.T. Webb and K. Müller. 2007. A penalty of using anonymous dominant markers (AFLPs, ISSRs, and RAPDs) for phylogenetic inference. Molecular Phylogenetics and Evolution 42: 528-542.
46. Zhang, L.-B., M.P. Simmons and S.S. Renner. 2007. A phylogeny of Anisophyllaceae based on six nuclear and plastid loci: ancient disjunctions and recent dispersal between South America, Africa, and Asia. Molecular Phylogenetics and Evolution 44: 1057-1067.
47. Poon, W.-S., P.-C. Shaw, M.P. Simmons and P.P.-H. But. 2007. Congruence of molecular, morphological, and biochemical profiles in Rutaceae: a cladistic analysis of the subfamilies Rutoideae and Toddalioideae. Systematic Botany 32: 837-846.
48. Simmons, M.P. 2008. Celastraceae. Pages 321-322 *in* Nuevo Catálogo de la Flora de Venezuela (O. Hokche, P.E. Berry, O. Huber, eds.). Fundación Instituto Botánico de Venezuela, Caracas.
49. Simmons, M.P. 2008. Potential use of host-derived genome signatures to root virus phylogenies. Molecular Phylogenetics and Evolution 49: 969-978.
50. Simmons, M.P., J.J. Cappa, R.H. Archer, A.J. Ford, D. Eichstedt and C.C. Clevinger. 2008. Phylogeny of the Celastreae (Celastraceae) and the relationships of *Catha edulis* (qat) inferred from morphological characters and nuclear and plastid genes. Molecular Phylogenetics and Evolution 48: 745-757.
51. Simmons, M.P., K.F. Müller and C.T. Webb. 2008. The relative sensitivity of different alignment methods and character codings in sensitivity analysis. Cladistics 24: 1039-1050.
52. Simmons, M.P., D. Richardson and A.S.N. Reddy. 2008. Incorporation of gap characters and lineage-specific regions into phylogenetic analyses of gene families from divergent clades: an example from the kinesin superfamily across eukaryotes. Cladistics 24: 372-384.

53. But, P.P.-H., A.W.-S. Poon, P.-C. Shaw, M.P. Simmons and H. Greger. 2009. Contribution of molecular cladistics to the taxonomy of Rutaceae in China. Journal of Systematics and Evolution 47: 144-150.
54. Coughenour, J.M., M.P. Simmons*, J.A. Lombardi and J.J. Cappa. 2010. Phylogeny of Celastraceae subfamily Salacioideae and tribe Lophopetaleae inferred from morphological characters and nuclear and plastid genes. Systematic Botany 35: 358-366.
55. Simmons, M.P., K.F. Müller and A.P. Norton. 2010. Alignment of, and phylogenetic inference from, random sequences: the susceptibility of alternative alignment methods to creating artifactual resolution and support. Molecular Phylogenetics and Evolution 57: 1004-1016.
56. Law, S.K.-Y., M.P. Simmons, N. Techen, I.A. Khan, M.-F. He, P.-C. Shaw, and P.P.-H. But. 2011. Molecular analyses of the Chinese herb leigongteng (*Tripterygium wilfordii* Hook.f.). Phytochemistry 72: 21-26.
57. Simmons, M.P., L.-B. Zhang and K.F. Müller. 2011. Phylogenetic inference using non-redundant coding of dependent characters vs. alternative approaches when applied to protein-coding genes. Cladistics 27: 186-196.
58. Coughenour, J.M., M.P. Simmons*, J.A. Lombardi, K. Yakobson and R.H. Archer. 2011. Phylogeny of Celastraceae subfamily Hippocrateoideae inferred from morphological characters and nuclear and plastid loci. Molecular Phylogenetics and Evolution 59: 320-330.
59. Guo, X., M.P. Simmons, P.P.-H. But, P.-C. Shaw and R.-J Wang. 2011. Application of DNA barcodes in *Hedyotis* L. (Spermacoceae, Rubiaceae). Journal of Systematics and Evolution 49: 203-212.
60. Simmons, M.P., K.F. Müller and C.T. Webb. 2011. The deterministic effects of alignment bias in phylogenetic inference. Cladistics 27: 402-416.
61. Bacon, C.D., G.P. Johnson, H. Meimberg, P. Puppo, M.P. Simmons, and W.L. Wagner. 2011. Development of microsatellites in the Hawaiian endemic palm *Pritchardia martii* (Arecaceae) and their utility in congeners. American Journal of Botany Primer Notes & Protocols in the Plant Sciences 98: E139-140.
62. Simmons, M.P. and J.V. Freudenstein. 2011. Spurious 99% bootstrap and jackknife support for unsupported clades. Molecular Phylogenetics and Evolution 61: 177-191.
63. McKenna, M.J., M.P. Simmons*, C.D. Bacon and J.A. Lombardi. 2011. Delimitation of the segregate genera of *Maytenus* sensu lato (Celastraceae) based on morphological and molecular characters. Systematic Botany 36: 922-932.
64. Simmons, M.P. 2012. Radical instability and spurious branch support by likelihood when applied to matrices with non-random distributions of missing data. Molecular Phylogenetics and Evolution 62: 472-484.
65. Simmons, M.P. 2012. Misleading results of likelihood-based phylogenetic analyses in the presence of missing data. Cladistics 28: 208-222.
66. Simmons, M.P., M.J. McKenna, C.D. Bacon, J.J. Cappa, R.H. Archer and A.J. Ford. 2012. Phylogeny of Celastraceae tribe Euonymeae inferred from morphological characters and nuclear and plastid loci. Molecular Phylogenetics and Evolution 62: 9-20.
67. Simmons, M.P., C.D. Bacon, J.J. Cappa and M.J. McKenna. 2012. Phylogeny of Celastraceae subfamilies Cassinoideae and Tripterygioideae inferred from morphological characters and nuclear and plastid loci. Systematic Botany 37: 456-467.
68. Bacon, C.D., W.J. Baker and M.P. Simmons. 2012. Miocene dispersal drives island radiations in the palm tribe Trachycarpeae (Arecaceae). Systematic Biology 61: 426-442.
69. Bacon, C.D., M.J. McKenna, M.P. Simmons and W.L. Wagner. 2012. Evaluating multiple criteria for species delimitation: an empirical example using Hawaiian palms (Arecaceae: *Pritchardia*). BMC Evolutionary Biology 12: 23.
70. Bernhardt, S.A., M.P. Simmons, K.E. Olson, B.J. Beaty, C.D. Blair, and W.C. Black. 2012. Intraspecific evolution of miRNA and siRNA genes in the mosquito *Aedes aegypti*. PLoS One 7: e44198.
71. Guo, X., R.-J. Wang*, M.P. Simmons*, P.P.-H. But and J. Yu. 2013. Phylogeny of the Asian *Hedyotis-Oldenlandia* complex (Spermacoceae, Rubiaceae): Evidence for high levels of polyphyly and parallel evolution of diplophragmous capsules. Molecular Phylogenetics and Evolution 67: 110-122.
72. Simmons, M.P. and J.J. Cappa. 2013. *Wilczekra*, a new genus of Celastraceae for a disjunct lineage of *Euonymus*. Systematic Botany 38: 148-153.
73. Simmons, M.P. and A.P. Norton. 2013. Quantification and relative severity of inflated branch-support values

generated by alternative methods: an empirical example. Molecular Phylogenetics and Evolution 67: 277-296.

74. Curto, M.A., L. Tembrock, P. Puppo, M. Nogueira, M.P. Simmons and H. Meimberg. 2013. Evaluation of microsatellites of *Catha edulis* (qat; Celastraceae) identified using pyrosequencing. Biochemical Systematics and Ecology 49: 1-9.
75. Simmons, M.P. and P.A. Goloboff. 2013. An artifact of undersampling optimal trees in supermatrix analyses of locally sampled characters. Molecular Phylogenetics and Evolution 69: 265-275.
76. Bacon, C.D., F. Michonneau, A.J. Henderson, M.J. McKenna, A.M. Milroy, and M.P. Simmons. 2013. Geographic and taxonomic disparities in species diversity: dispersal and diversification across Wallace's Line. Evolution 67: 2058-2071.
77. Gilligan, T.M., D.J. Wright, J. Munz, K. Yakobson, and M.P. Simmons. 2014. Molecular phylogeny and revised classification of *Eucosma* Hübner and related genera (Lepidoptera: Tortricidae: Eucosmini). Systematic Entomology 39: 49-67.
78. Simmons, M.P. and A.P. Norton. 2014. Divergent maximum-likelihood-branch-support values for polytomies. Molecular Phylogenetics and Evolution 73: 87-96.
79. Simmons, M.P. 2014. Limitations of locally sampled characters in phylogenetic analyses of sparse supermatrices. Molecular Phylogenetics and Evolution 74: 1-14.
80. Cappa, J.J., P.J. Cappa, A.F. El Mehdawi, J.M. McAleer, M.P. Simmons and E.A.H. Pilon-Smits. 2014. Characterization of selenium and sulfur accumulation in *Stanleya* (Brassicaceae): a field survey and common-garden experiment. American Journal of Botany 101: 830-839.
81. Groppo, M., M.P. Simmons, J.J. Cappa, L. Biral, and J.A. Lombardi. 2014. A new species of *Maytenus* (Celastraceae) with fleshy fruits from eastern Brazil with notes on the delimitation of *Maytenus*. Systematic Botany 39: 478-484.
82. Simmons, M.P. and C.P. Randle. 2014. Disparate parametric branch-support values from ambiguous characters. Molecular Phylogenetics and Evolution 78: 66-86.
83. Simmons, M.P. and P.A. Goloboff. 2014. Dubious resolution and support from published sparse supermatrices: The importance of thorough tree searches. Molecular Phylogenetics and Evolution 78: 334-348.
84. Simmons, M.P. 2014. A confounding effect of missing data on character conflict in maximum likelihood and Bayesian MCMC phylogenetic analyses. Molecular Phylogenetics and Evolution 80: 267-280.
85. Goloboff, P.A. and M.P. Simmons. 2014. Bias in tree searches, and its consequences for measuring group supports. Systematic Biology 63: 851-861.
86. Cappa, J.J., C. Yetter, S. Fakra, P.J. Cappa, R. DeTar, C. Landes, E.A.H. Pilon-Smits, and M.P. Simmons. 2015. Evolution of selenium hyperaccumulation in *Stanleya* (Brassicaceae) as inferred from phylogeny, physiology and X-ray microprobe analysis. New Phytologist 205: 583-595.
87. Simmons, M.P. and J. Gatesy. 2015. Coalescence vs. concatenation: sophisticated analyses vs. first principles applied to rooting the angiosperms. Molecular Phylogenetics and Evolution 91: 98-122.
88. Simmons, M.P. 2015. Ten simple rules for writing a reply paper. PLoS Computational Biology 11: e1004536.
89. Bacon, C.D., M.P. Simmons*, R.H. Archer, L. Zhao, and J. Andriantiana. 2016. Biogeography of the Malagasy Celastraceae: multiple independent origins followed by widespread dispersal of genera from Madagascar. Molecular Phylogenetics and Evolution 94: 365-382.
90. Judd, C.R., A. Koyama, M.P. Simmons, P. Brewer, J.C. von Fischer. 2016. Co-variation in methanotroph community composition and activity in three temperate grassland soils. Soil Biology & Biochemistry 95: 78-86.
91. Simmons, M.P., D.B. Sloan, and J. Gatesy. 2016. The effects of subsampling gene trees on coalescent methods applied to ancient divergences. Molecular Phylogenetics and Evolution 97: 76-89.
92. Warren, J.M., M.P. Simmons, Z. Wu, and D.B. Sloan. 2016. Linear plasmids and the rate of sequence evolution in plant mitochondrial genomes. Genome Biology and Evolution 8: 364-374.
93. Gu, C., L.R. Tembrock, N.G. Johnson, M.P. Simmons, and Z. Wu. 2016. The complete plastid genome of *Lagerstroemia fauriei* and loss of an *rpl2* intron from *Lagerstroemia* (Lythraceae). PLOS One 11: e0150752.
94. Simmons, M.P. and J. Gatesy. 2016. Biases of tree-independent-character-subsampling methods. Molecular

Phylogenetics and Evolution 100: 424-443.

95. Gill, B.A., B.C. Kondratieff, K.L. Casner, A.C. Encalada, A.S. Flecker, D.G. Gannon, C.K. Ghalambor, J.M. Guayasamin, N.L. Poff, M.P. Simmons, S.A. Thomas, K.R. Zamudio, and W.C. Funk. 2016. Cryptic species diversity reveals biogeographic support for the 'mountain passes are higher in the tropics' hypothesis. Proceedings of the Royal Society B: Biological Sciences 283: 20160553.
96. Darbyshire, I., M.P. Simmons, J.J. Cappa, F.J. Breteler, and S. Buerki. 2016. A questionable African species of *Pleurostylia* is actually a member of the New World *Crossopetalum* (Celastraceae). Systematic Botany 41: 851-864.
97. Simmons, M.P. 2017. Relative benefits of amino-acid, codon, degeneracy, DNA, and purine-pyrimidine character coding for phylogenetic analyses of exons. Journal of Systematics and Evolution 55: 85-109.
98. Tembrock, L.R., M.P. Simmons*, C.M. Richards, P.A. Reeves, A. Reilley, M.A. Curto, H. Meimberg, G. Ngugi, S. Demissew, A.W. Al Khulaidi, M. Althobhani, S. Simpson, and D.M. Varisco. 2017. Phylogeography of the wild and cultivated stimulant plant qat (*Catha edulis*, Celastraceae) in areas of historic cultivation. American Journal of Botany 104: 538-549.
99. Gatesy, J., R.W. Meredith, J.E. Janecka, M.P. Simmons, W.J. Murphy, and M.S. Springer. 2017. Resolution of a concatenation/coalescence kerfuffle: partititioned coalescence support and a robust family-level tree for Mammalia. Cladistics 33: 295-332.
100. Tembrock, L.R., C.D. Broeckling, A.L. Heuberger, M.P. Simmons, F.R. Stermitz, and J. Uvarov. 2017. Employing GC-MS and two-stage derivatization to assay for cathine and related stimulant alkaloids across the Celastraceae. Phytochemical Analysis 28: 257-266.
101. Simmons, M.P. 2017. Mutually exclusive phylogenetic inferences from both nuclear and plastid genomic datasets at the root of the angiosperms: *Amborella* is supported as sister and Observed Variability is biased. Cladistics 33: 488-512.
102. Biral, L.*, M.P. Simmons*, E.C. Smidt, M. Bolson, L.R. Tembrock, R.H. Archer, and J.A. Lombardi. 2017. Systematics of New World *Maytenus* (Celastraceae) and a new delimitation of the genus. Systematic Botany 42: 680-693.
103. Simmons, M.P. 2018. Ten rules for associate editors. Botanical Review 84: 99-107.
104. Wang, J., J.J. Cappa, J. Harris, P.P. Edger, W. Zhou, J.C. Pires, M. Adair, S.A. Unruh, M.P. Simmons, M. Schiavon, and E.A.H. Pilon-Smits. 2018. Transcriptome-wide comparison of selenium hyperaccumulator and non-accumulator *Stanleya* species provides new insight into key processes mediating the hyperaccumulation syndrome. Plant Biotechnology Journal 16: 1582-1594.

Contributed presentations

1. Simmons, M.P., W.J. Hayden, and D.M.E. Ware. 1993. The vascular flora of the Potomac River watershed of King George County, Virginia. Virginia Academy of Science Annual Meeting, Norfolk.
2. Simmons, M.P. and W.J. Hayden. 1994. Revision of the cerrado hemicryptophytic *Chamaesyce* of Boissier's *Pleiadeniae* (Euphorbiaceae). Virginia Academy of Science Annual Meeting, Harrisonburg.
3. Simmons, M.P. and J.P. Hedin. 1998. Relationships and morphological character change among genera of the Celastraceae sensu lato (including Hippocrateaceae). American Institute of Biological Sciences Annual Meeting, Baltimore.
4. Simmons, M.P., H. Ochoterena, and T. Carr. 2000. Incorporation, relative homoplasy, and effect of gap characters in sequence-based phylogenetic analyses. Botany 2000, Portland.
5. Simmons, M.P., V. Savolainen, C.C. Clevinger, R.H. Archer, and J.I. Davis. 2000. Phylogeny of the Celastraceae inferred from 26S nuclear ribosomal DNA, phytochrome B, *rbcL*, *atpB*, and morphology. Botany 2000, Portland.
6. Simmons, M.P., H. Ochoterena and J.V. Freudenstein. 2001. Amino acid vs. nucleotide characters: challenging preconceived notions. Botany 2001, Albuquerque.
7. Simmons, M.P. and J.V. Freudenstein. 2001. The effects of increasing genetic distance on alignment of, and tree construction from, rDNA internal transcribed spacer sequences. Botany 2001, Albuquerque.

8. Simmons, M.P. and J.V. Freudenstein. 2001. Artifacts of coding amino acids and other composite characters for phylogenetic analysis. Willi Hennig Society Annual Meeting, Corvallis.
9. Simmons, M.P. and J.V. Freudenstein. 2002. Uninode coding vs. gene-tree parsimony for phylogenetic reconstruction using duplicate genes. Evolution 2002, Urbana.
10. Simmons, M.P., J.V. Freudenstein, K.M. Pickett, and J.W. Wenzel. 2002. From basepairs to birdsongs: phylogenetic data in the age of genomics. Evolution 2002, Urbana.
11. Simmons, M.P. and J.V. Freudenstein. 2002. Independence of alignment and tree search. Evolution 2002, Urbana.
12. Simmons, M.P. and J.V. Freudenstein. 2002. Phylogenetic reconstruction from duplicate genes via uninode coding or gene-tree parsimony. Botany 2002, Madison.
13. Simmons, M.P., J.V. Freudenstein, K.M. Pickett, and J.W. Wenzel. 2002. Whither phenotypic characters in the age of genomics? Botany 2002, Madison.
14. Simmons, M.P., T.G. Carr, and K. O'Neill. 2003. Nucleotide vs. amino acid characters: relative character-state space, amount of potential phylogenetic information, and heterogeneity. Willi Hennig Society Annual Meeting, New York City.
15. Simmons, M.P. and M. Miya. 2003. Efficiently resolving the basal clades of a phylogenetic tree using Bayesian and parsimony approaches. Botany 2003, Mobile.
16. Simmons, M.P., T.G. Carr, and K. O'Neill. 2003. Relative character-state space, amount of potential phylogenetic information, and heterogeneity of nucleotide and amino acid characters. Botany 2003, Mobile.
17. Simmons, M.P., A. Reeves, and J.I. Davis. 2004. The relationship between character-state space and rate of evolution for phylogenetic inference. Evolution 2004, Fort Collins.
18. Simmons, M.P., L.-B. Zhang, C.T. Webb, A. Reeves, and J.A. Miller. 2004. Parsimony vs. Bayesian likelihood for phylogenetic inference from heterogeneous datasets. Botany 2004, Salt Lake City.
19. Simmons, M.P., A. Reeves, and J.I. Davis. 2004. Character-state space versus rate of evolution in phylogenetic inference. Botany 2004, Salt Lake City.
20. Simmons, M.P. and K. Müller. 2006. The relative performance of indel-coding methods in simulations. Botany 2006, Chico.
21. Simmons, M.P. and K. Müller. 2006. Can the correct alignment be improved upon for phylogenetic inference? Botany 2006, Chico.
22. Simmons, M.P. and K. Müller. 2006. The relative performance of indel-coding methods in simulations. Willi Hennig Society Annual Meeting, Oaxaca.
23. Simmons, M.P. and K. Müller. 2006. Can the correct alignment be improved upon for phylogenetic inference? Willi Hennig Society Annual Meeting, Oaxaca.
24. Simmons, M.P., K. Müller, and C.T. Webb. 2007. The deterministic effects of alignment methods to phylogenetic inference. Willi Hennig Society Annual Meeting, New Orleans.
25. Simmons, M.P., K. Müller, and C.T. Webb. 2007. The deterministic effects of alignment methods to phylogenetic inference. Botany & Plant Biology 2007 Joint Congress, Chicago.
26. Simmons, M.P., J.J. Cappa, R.H. Archer, A.J. Ford, D. Eichstedt, and C.C. Clevinger. 2008. Phylogeny of the Celastreae (Celastraceae) and the relationships of *Catha edulis* (qat) inferred from morphological characters and nuclear and plastid genes. Botany 2008, Vancouver.
27. Simmons, M.P., K.F. Müller, and C.T. Webb. 2008. The relative sensitivity of different alignment methods and character codings in sensitivity analysis. Botany 2008, Vancouver.
28. Simmons, M.P., J.M. Coughenour, J.A. Lombardi, and J.J. Cappa. 2009. Phylogeny of Celastraceae subfamily Salacioideae and tribe Lophopetaleae inferred from morphological characters and nuclear and plastid genes. Botany & Mycology 2009, Salt Lake City.
29. Simmons, M.P., J.M. Coughenour, J.A. Lombardi, K. Yakobson, and R.H. Archer. 2009. Phylogeny of Celastraceae subfamily Hippocrateoideae inferred from morphological characters and nuclear and plastid genes. Botany & Mycology 2009, Salt Lake City.
30. Simmons, M.P., M.J. McKenna, R.H. Archer, C.D. Bacon, and J.A. Lombardi. 2010. Delimitation of the segregate genera of *Maytenus* sensu lato (Celastraceae) based on morphological and molecular characters.

Botany 2010, Providence.
31. Simmons, M.P., L.-B. Zhang, and K.F. Müller. 2010. Phylogenetic inference using non-redundant coding of dependent characters vs. alternative approaches for protein-coding genes. Botany 2010, Providence.
32. Simmons, M.P., M.J. McKenna, C.D. Bacon, J.J. Cappa, R.H. Archer and A.J. Ford. 2011. Phylogeny of Celastraceae tribe Euonymeae inferred from morphological characters and nuclear and plastid loci. Botany 2011, St. Louis.
33. Simmons, M.P. and J.V. Freudenstein. 2011. Spurious 99% bootstrap and jackknife support for unsupported clades. Botany 2011, St. Louis.
34. Simmons, M.P. 2012. Radical instability and spurious branch support by likelihood when applied to matrices with non-random distributions of missing data. Willi Hennig Society Annual Meeting, Riverside.
35. Simmons, M.P. and P.A. Goloboff. 2013. An artifact of undersampling optimal trees in supermatrix analyses of locally sampled characters. Evolution 2013, Salt Lake City.
36. Simmons, M.P. and A.P. Norton. 2014. Divergent maximum-likelihood-branch-support values for polytomies. Botany 2014, Boise.
37. Simmons, M.P. and C.P. Randle. 2014. Disparate parametric branch-support values from ambiguous characters. Botany 2014, Boise.

Symposia

1. Simmons, M.P., H. Ochoterena and J.V. Freudenstein. 2001. Conflict between amino acid and nucleotide characters. Congruence Symposium, Willi Hennig Society 2001 Annual Meeting, Corvallis.
2. Simmons, M.P. and M. Miya. 2003. Efficiently resolving the basal clades of phylogenies and gene trees. Seventh Rocky Mountain Plant Biotechnology and Molecular Biology Symposium, Fort Collins.
3. Simmons, M.P. and M. Miya. 2003. Efficiently resolving the basal clades of a phylogenetic tree using Bayesian and parsimony approaches: a case study using mitogenomic data from 100 higher teleost fishes. Competing Methods for Phylogenetic Analysis Symposium, Willi Hennig Society 2003 Annual Meeting, New York City.
4. Symposium organizer, “Competing Methods for Sequence Alignment,” Willi Hennig Society 2003 Annual Meeting, New York City.
5. Colloquium co-organizer, “Methods and Theory of Phylogenetic Inference,” Botany 2004, Salt Lake City.
6. Simmons, M.P., L.-B. Zhang, T.G. Carr, and K. Müller. 2005. A penalty of using anonymous dominant markers (AFLPs, ISSRs, and RAPDs) for phylogenetic inference. The Character Concept in the Phylogeny and Evolution of Plants Symposium, International Botanical Congress 2005, Vienna.
7. Symposium co-organizer, “Character Coding in Phylogenetic Inference,” International Botanical Congress 2005, Vienna.
8. Symposium organizer, “Character-Sampling Strategies for Phylogenetic Inference,” Willi Hennig Society 2006 Annual Meeting, Oaxaca.
9. Symposium organizer, “Alignment for Phylogenetic Inference,” Willi Hennig Society 2007 Annual Meeting, New Orleans.
10. Simmons, M.P. and J. Gatesy. 2014. Bias in phylogenomic pipelines: an empirical example. ISTeC Data Analysis Symposium, Colorado State University, Fort Collins.
11. Simmons, M.P. and J. Gatesy. 2015. Coalescence vs. concationation: sophisticated analyses vs. first principles applied to rooting the angiosperms. Phylogenomics Symposium. Willi Hennig Society 2015 Annual Meeting, New York City.
12. Simmons, M.P. and J. Gatesy. 2016. Biases of tree-independent-character-subsampling methods at the root of the angiosperms. Methodological Problems Symposium. Willi Hennig Society 2016 Annual Meeting, Buenos Aires.
13. Simmons, M.P., L.R. Tembrock, C.M. Richards, P.A. Reeves, A. Reilley, M.A. Curto, H. Meimberg, G. Ngugi, S. Demissew, A.W. Al Khulaidi, M. Althobhani, S. Simpson, and D.M. Varisco. 2017. Phylogeography of the wild and cultivated stimulant plant miraa (*Catha edulis*, Celastraceae) in areas of historic cultivation. Keynote address. XXI AETFAT Congress 2017, Nairobi.

Invited seminars

2000: Carnegie Museum of Natural History
Ohio State University Herbarium
2001: Dept. of Biology, Colorado State University
Dept. of Biology, Idaho State University
Sigma Xi, Colorado State University
2002: Dept. of Botany, University of Wyoming
Colorado Native Plant Society, Fort Collins Chapter
2003: Colorado Native Plant Society, Denver Chapter
Dept. of EPOB, University of Colorado, Boulder
Dept. of Biological Sciences, University of Northern Colorado
2004: Dept. of Biology, New Mexico State University
Deep Time Meeting and Workshop, George Washington University
2006: Dept. of Biology, Colorado State University
2007: Dept. of Biology, University of Colorado, Denver
Missouri Botanical Garden
Dept. of Biochemistry, Colorado State University
2008: Denver Botanic Gardens
2009: School of Biological Sciences, University of Nairobi
2010: Division of Environmental Biology, National Science Foundation
Instituto de Biología, Universidad Nacional Autónoma de México
Instituto de Ecología, AC, Xalapa
Denver Botanic Gardens
2011: Rancho Santa Ana Botanic Garden
2012: Dept. of Biological Sciences, University of Northern Colorado
Dept. of Biological Sciences, Sam Houston State University
2016: Dept. of Plant Biology, Cornell University
Smithsonian National Museum of Natural History
South African National Biodiversity Institute, Pretoria
2017: Dept. of Plant Sciences, Microbiology and Biotechnology, Makerere University
Africa Innovations Institute, Kampala
School of Biological Sciences, University of Nairobi
2018: Chicago Botanic Garden
Fulbright Pre-Departure Orientation for Scholars and Students to Sub-Saharan Africa
Missouri Botanical Garden

Manuscript reviews

American Journal of Botany associate editor (156 manuscripts), 2007 – present
Cladistics associate editor (20 manuscripts), 2017 – present
PhytoKeys subject editor (0 manuscripts), 2018 – present
Systematic Botany associate editor (77 manuscripts), 2006 – 2017

189 manuscript reviews from 2001 – 2017:

American Journal of Botany
Annales Botanici Fennici
Annals of Botany
Annals of the Missouri Botanical Garden
Applications in Plant Sciences
Australian Systematic Botany
Belgian Journal of Botany
Biochemical Systematics and Ecology
Bioinformatics
BMC Bioinformatics
BMC Evolutionary Biology
BMC Genomics
Botanical Journal of the Linnean Society
Bothalia
Brittonia
Caldasia
Cat. of the vasc. plants of the southern cone
Cladistics
Comptes Rendus Palevol
Ecology and Evolution
Edinburgh Journal of Botany
Electronic Journal of Biotechnology
Evolution
Evoluionary Bioinformatics
Flora
Flora of China
Flora of India checklist
Genetics
Genome Biology and Evolution
International Journal of Molecular Sciences
International Journal of Plant Sciences
Journal of Agricultural Research
Journal of the Botanical Res. Inst. of Texas
Journal of Evolutionary Biology
Journal of Molecular Evolution
Journal of Plant Research
Mathematical Biosciences
Methods in Ecology and Evolution
Molecular Biology and Evolution
Molecular Ecology
Molecular Ecology Resources
Molecular Phylogenetics and Evolution
New Phytologist
Nordic Journal of Botany
Novon
Nuytsia
Organisms Diversity & Evolution
Parsimony, phylogeny, and genomics
PeerJ
PhytoKeys
Phytotaxa
Plant Biology
Plant Diversity
Plant Physiology
Plant Systematics and Evolution
PLoS One
Proc. of the Entomological Society of Washington
Proc. of the Royal Society B: Biological Sciences
Protoplasma
Psychology Research and Behavior Management
Review of Palaeobotany and Palynology
South African Journal of Botany
Stat
Systematic Biology
Systematic Botany
Systematics and Biodiversity
Taxon
Telopea
Trends in Plant Science
Weed Science

Grant reviews

National Science Foundation, Systematic Biology panel member, 2007, 2010
National Science Foundation, Biology Postdoctoral Fellowships panel member, 2018

Austrian Science Fund
Colorado Native Plant Society
German Research Foundation
National Geographic Society
National Science Foundation, Advances in Bioinformatics
National Science Foundation, Assembling the Tree of Life
National Science Foundation, Biological Research Collections
National Science Foundation, Systematic Biology
Royal Society of New Zealand
Society of Herbarium Curators
U.S. Civilian Research and Development Foundation

Committees

Willi Hennig Society Council, 2017 – present
Space Committee, Dept. of Biology, Colorado State Univ., 2017 – present
Interim Scholarship Coordinator, College of Natural Sciences, Colorado State Univ., 2015 – 2016
Scholarship Committee, College of Natural Sciences, Colorado State Univ., 2004 – 2016
Awards Committee, Dept. of Biology, Colorado State Univ., 2004 – 2016, 2017 – present (chair, 2008 – 2016, 2017 – present)
American Society of Plant Taxonomists Public Relations Committee, 2008 – 2013
Chair, faculty search committee, Dept. of Biology, Colorado State Univ., 2012 – 2013
Tenure and Promotion Committee, Dept. of Biology, Colorado State Univ., 2010 – 2012
Executive Committee, Dept. of Biology, Colorado State Univ., 2005 – 2007
Local co-organizer, "Evolution 2004" annual meeting
Board of Directors, Colorado Native Plant Society, 2002 – 2004
Co-chair, Seminar Committee, Dept. of Biology, Colorado State Univ., 2002 – 2004